REMARKS

By way of the present response, claims 1, 3-8, 10-15, 21 and 25-27 are amended, claims 22-24 are canceled, and new claims 28-30 are added. Claims 1-21 and 25-30 currently are pending. Support for the amended subject matter is found, for example, in claims 22-24, paragraphs 0012, 0014, 0017, and 0019, and Figures 1 and 2 of the original disclosure. In view of the above amendments and the remarks advanced below, Applicant requests reconsideration and withdrawal of the rejection of the claims.

The Office has rejected claims 1-24 under 35 U.S.C. § 102(e) as being anticipated by Proctor, Jr. (U.S. Patent No. 6,473,036). In setting forth the rejection of independent claims 1, 8 and 15, the Office refers to column 4, lines 19-21 and Figure 2 of the Proctor, Jr. patent for disclosing a transceiver 130 and controller 140 (processor) with memory that stores data about antenna/part of apparatus. The Office asserts that the transceiver 130 and controller 140 of Proctor, Jr. corresponds to the claimed "information component" with "memory and processor," and that "[t]he invention provides a mechanism and method for efficiently configuring the antenna apparatus to maximize the effective radiated and/or received energy" (column 9, lines 23-26). The action refers to column 4, lines 42-45 of Proctor, Jr. and asserts that information is obtained from monitoring a response to a pilot signal and is used to optimize the operation of the part of the apparatus based on the obtained information by applying instructions. Next, the Office cites column 4, lines 52-55, "Through the use of an array of antenna elements, each having a programmable weight control component for forming the antenna beam as desired, the antenna apparatus increases the effective transmit power per bit transmitted"; column 7, lines 38-43, 48-54 and 60-61 and column 9, lines 15-57 for disclosing course and fine adjustment steps corresponding to optimization; and column 8, lines 39-42 and 58-64 for describing setting individual weights for execution by control components 111-115. In connection with claims 22-24, at page 6, the Office asserts Proctor, Jr. describes a process to determine and apply optimal weights, at column 9, lines 15-57; that column 8, lines 58-64 describes the controller 140 determining and setting an optimal weight for each weight control component 111 through 115; that column 9, lines 23-26 states, "[t]he control signal input to each of the weight control components 111 through 115 for changing the weights...can be read from memory locations within the controller 140," and that the controller executes the instructions with a processor to optimize the at least one operation of the apparatus.

In the present response, claims 1, 8 and 15 are amended to include subject matter of claims 22-24, respectively. It is respectfully submitted that the Proctor, Jr. patent does not describe all the features of the presently amended claims. For instance, Proctor, Jr. does not describe processes of "receiving, from an information component of at least one part of an apparatus, information about the at least one part of the apparatus transmitted from the information component ... determining instructions for optimizing at least one operation of the at least one part of the apparatus based on the received information; and transmitting the instructions to the information component for execution by the processor to optimize the at least one operation of the apparatus," as recited in amended independent claims 1 and 8. Proctor, Jr. also does not recite the features of "an information component for at least one of the parts, the information component comprising memory, a processor and a transceiver, said memory having stored therein data about the at least one part; an optimization processing system that receives the data, which was transmitted from the transceiver of the information component, and determines instructions for optimizing at least one operation of the at least one part of the apparatus based on the received data and transmits the instructions to the transceiver of the information component for execution by the processor to optimize the performance of the apparatus," as recited in amended independent claim 15.

It is respectfully submitted that the process and apparatus of the present invention are distinctly different from the way in which optimization is carried out for a part of an apparatus in the Proctor, Jr. system. The Proctor, Jr. patent is directed to an antenna apparatus including a phase array antenna apparatus (i.e., "mobile subscriber unit 60"). With reference to Figure 2, the mobile subscriber unit 60 includes a transceiver (item 130) and controller (item 140) for receiving and transmitting signals between a laptop computer (item 150) and a base station (item 160) (see, column 6, lines 40-57). The mobile subscriber unit 60 also includes "weight control components" 111-115, which receive values related to phase and/or amplitude determined by the controller 140 to control the direction of the antenna beam pattern for reception or transmission (see, column 6, lines 46-48, column 8, lines 44-45 and column 9, lines 17-23).

Proctor, Jr. optimizes reception and transmission of signals by the subscriber unit 60 by adjusting the configuration of the antenna array based on the quality of a received signal (e.g., strength, maximum signal to noise ratio, bit error rate etc., see column 9, lines

43-47). The adjustment is carried out in two ways. First, during idle time when the mobile subscriber unit 60 is not operating to transmit and receive signals, it monitors a continuously transmitted pilot signal 190 transmitted from a base station 160. According to Proctor, Jr., the signal response of the received pilot signal 190 serves as a basis for adjusting the weight control components 111-115 to optimize reception of the pilot signal (column 8, lines 51-54). Second, during an operational mode, the subscriber unit can receive "known data" (described below in detail) from the base station, which is transmitted with a forward link signal 180. However, none of the forward link signals 180, 190, and the reverse link signals 170 is information in the claimed context of "receiving, from an information component of at least one part of an apparatus, information about the at least one part of an apparatus ... determining instructions for optimizing at least one operation of the at least one part of the apparatus based on the received information" as recited in amended claims 1 and 8; and none are "data about the at least one part ... an optimization processing system that receives the data, which was transmitted from the transceiver of the information component, and determines instructions for optimizing at least one operation of the at least one part of the apparatus based on the received data" as recited in amended claim 15. These points are now explained in further detail.

In the apparatus of Proctor, Jr., optimization of the antenna (i.e., the optimal beam pattern) involves the following transmissions and receptions:

A. Forward Link Signals Transmitted from the Base Station 160 and Received by the Subscriber Unit 60 (signals 180 and pilot signal 190 as shown in Figure 2)

1. Pilot Signal:

A pilot signal is transmitted from the base station to all mobile units in the cell. [For example, as is known in the art with respect to CDMA systems, a pilot signal is a signal can be decoded by a pn chip code that all the mobile units know (and each mobile unit in a cell also is assigned its own unique pn chip code for decoding, for example, a phone call to that unit while the unit is within the cell).] The pilot signal is used for various purposes, including optimization as described in Proctor, Jr. However, the pilot signal as transmitted from the base station does not change and is continuously transmitted. When a pilot signal is received, decoded and correlated, the mobile unit can estimate, for example, how far it is

away from the base station and adjust its transmission signal strength accordingly. In the Proctor, Jr. system, the pilot signal is used to determine which one of a number of stored configurations for the phase shifters (and attenuators) the antenna array should use based on a comparison of the relative signal strength (or other metric) of the pilot signal over a number of configuration iterations.

2. "Known Data" Transmitted with Signals 180

According to Proctor, Jr., "known data" may be transmitted from the base station to a particular mobile unit. As described in Proctor, Jr., at column 10, lines 30-34, known data can be transmitted from the base station 160 during the active operational state (as opposed to the "idle state" when the pilot signal is used, see column 8, lines 49-57) of the subscriber unit (i.e., mobile unit). Insofar as discussed in Proctor, Jr., "known data" appears to convey some location information about the base station 160 to the subscribe unit 60 (see, column 9, lines 38-40), which is transmitted from the base station 160 along with the other signal data in a forward link 180. Proctor, Jr. does not otherwise elaborate on what information the "known data" contains, but discloses that the mobile unit uses the known data for comparison and identification of the optimum signal quality metric (see, column 11, line 66 to column 12, line 5).

With respect to the pilot signal 190 and operational signals 180 containing "known data," neither of these signals present in the Proctor, Jr. apparatus are received from a part of an apparatus that is being optimized because the signals are transmitted by the base station 160, and Proctor, Jr. mentions nothing about optimizing a base station 160. In fact, the base station 160 would appear to transmit the forward link signals 190, 180 the same way at one instance as it would in any other instance, regardless of the position or strength of a signal transmitted from the subscriber unit 60. In other words, optimization of an operation as described in the Proctor, Jr. patent is performed for the antenna elements at the subscriber side only.

Conversely, any information received by the subscriber unit 60 from the pilot signal or the forward links signal including the known data is not "from an information component of at least one part of an apparatus" from which instructions are determined "for optimizing at least one operation of the one part of the apparatus" as claimed. As pointed out

above, optimization according to Proctor, Jr. is performed for the antenna elements on the side of the subscriber unit 60 only and will have no effect on how the base station 160 operates.

Thus, neither the base station 160, nor information received or transmitted therefrom, as described in Proctor, Jr., meets the features of "receiving, from an information component of the at least one part ... determining instructions for optimizing at least one operation of the at least one part ... based on the received information ...," as recited in claims 1 and 8, and similar features recited in claim 15 in connection with an apparatus.

B. Signals Transmitted from the Subscriber Unit 60:

1. Reverse Link (shown as 170 in Figure 2):

In the Proctor, Jr. apparatus, signals originating from the computer 150 are transmitted through the subscriber unit 60 to the base station 160. For example, when viewing the subscriber unit 60 and computer 150 as a black box, reverse link signals 170 transmitted from the subscriber are sent to a receiver at the base station 160. As pointed out above, Proctor, Jr. mentions nothing whatsoever about the base station 160 being optimized in any manner based on signals received from the subscriber unit 60. Although the subscriber unit 60 could be considered an information component of at least one part of an apparatus, and one comprising memory and a processor, and that the information received by the base station 160 from the subscriber unit can be considered information about the at least one part of the apparatus transmitted from the information component, the Proctor, Jr. apparatus makes no determination for instructions to optimize at least one operation of the subscriber unit 60 based on the information received at the base station 160 (i.e., information in the reverse link signal 170 received by the base station 160), much less that instructions, which were determined for "optimizing the at least one operation of the at least one part ... based on the received information," are transmitted to the information component, as claimed in claims 1 and 8. Likewise, Proctor, Jr. does not describe "an optimization processing system that receives the data, which was transmitted from the transceiver of the information component, and determines instructions for optimizing at least one operation of the at least one part of the apparatus based on the received data and transmits the instructions to the transceiver of the information component ...," as set forth in claim 15.

C. Signals Within the Subscriber Unit 60:

1. Between the controller 140 and the weight-control components 111-115:

In the Proctor, Jr. system, the controller 140 computes and transmits weighting values to the weight-control components 111-115 (column 8, lines 43-45 and column 9, lines 17-19). The control signal input to each of the weight control components 111 through 115 for changing the weights to scan the antenna beam is read from memory locations within the controller 140 (column 9, lines 23-26). There is no disclosed signal transmitted from the weight control components 111 through 115 to the controller 140. Furthermore, there is no apparent need for such a signal.

While the weight values transmitted to the weight control components 111 through 115 could be considered instructions for optimizing a component in the Proctor, Jr. apparatus, the weight values are received by the weight control components 111 through 115, and Proctor, Jr. is silent with respect to whether these components include a processor or transceiver. Thus, the weight control components 111 through 115 of Proctor, Jr. cannot be considered to meet the recitations "information component comprising memory and a processor," as recited in claims 1 and 8, and "information component comprising memory, a processor and a transceiver," as recited in claims 15.

2. Between the transceiver 130 and the controller 140:

In the Proctor, Jr. apparatus, the response of the transceiver 130 (i.e., the receiver of the transceiver) to the pilot signal is determined at each beam location (i.e., at each iteration through the stored phase shifter configurations) (see, column 9, lines 31-32). Another embodiment in the Proctor, Jr. patent is described as follows: "Each element 101 through 105 can be connected directly to a transceiver for receiving and transmitting signals, where the weight control components 111 through 115 are interposed between each element and its corresponding transceiver. Each transceiver can individually determine the signal quality metric of the signal received at its associated element and the five (or n in the more general case) resulting signal quality metrics provided as an input to the controller 140 for determining a combined signal quality metric and in response thereto establishing the weights for each element as disclosed herein" (column 10, lines 1-7). Thus, the transceiver receives

the forward link signals 180, 190, determines a quality metric of the signal, and transmits a metric value, which is received by the controller 140. However, the transceiver 130 is not described in Proctor, Jr., as including a processor and memory. Furthermore, the values generated by the controller 140 are not transmitted to the transceiver, but instead are sent to the weight control components 111 through 115. Hence, the transceiver 130 does not meet the claimed features of an "information component comprising memory and a processor" and "transmitting the instructions to the information component for execution by the processor to optimize the at least one operation of the apparatus," as recited in claims 1 an 8, and similar features of claim 15.

3. Between the transceiver 130, the splitter/combiner 120, and the weight control components 111 through 115:

A function of the transceiver is to receive reverse link signals 170 to be transmitted from circuitry within the subscriber unit 60 and modulate the signals onto a carrier signal at a specific frequency assigned to that subscriber unit. The modulated carrier signal is split at the splitter/combiner 120 and sent to the antenna elements for transmission. Forward link signals 180, 190 received by the antenna element at a specific frequency are combined by a summer of the splitter/combiner 120, demodulated by the transceiver, and supplied to processing circuitry within the subscriber unit 60. None of the splitter/combiner 120, transceiver, or the weight-control components 111-115 are described in Proctor, Jr. as including a processor and memory. Hence, none of these components of the subscriber unit 60 meet the claim limitations of "information component comprising memory and a processor ...."

As pointed out above, Proctor, Jr. describes that the controller 140 and its memory compute the weight-settings for the weight-control components 111-115 (see, column 8, lines 66-67 and column 9, lines 23-31), and that the computation is based on data stored in the controller and/or a pilot signal or "known data" received from the base station (see, column 10, lines 21-34). Hence, Proctor, Jr. does not describe the claimed features of "receiving, from an information component of at least one part of an apparatus, information about the at least one part of the apparatus transmitted from the information component ... determining instructions for optimizing at least one operation of the at least one part of the

apparatus ...," as recited in claims 1 and 8, because the base station is not a part of an apparatus being optimized.

Moreover, the Office asserts that the transceiver 130 and controller 140 of the mobile subscriber unit 60 of Proctor, Jr. correspond to the claimed "information component." However, Proctor, Jr. discloses that the weights-settings are computed by the controller 140, and weight values computed by the controller 140 are transmitted from the controller to the weight control components 111-115, (see the direction of the arrows from the controller 140 to the items 111-115, as shown in Figure 2). Thus, even if one were to consider that instructions for optimizing at least one operation are generated by the controller 140, such instructions are transmitted from the controller 140 and not to the controller 140 (and transceiver 130, which the Office considers the information component). Therefore, Proctor, Jr. also does not describe the process of "transmitting the instructions to the information component for execution by the processor ...," as claimed.

Similar distinctions are recited in amended independent claim 15, which recites, among other things, "an information component for at least one of the parts, the information component comprising memory, a processor and a transceiver ... an optimization processing system that receives the data transmitted from the transceiver of the information component and determines instructions for optimizing at least one operation of the at least one part of the apparatus based on the received data and transmits the instructions to the transceiver of the information component for execution by the processor to optimize the performance of the apparatus." As pointed out above, the pilot signal 190 and "known data" received by the controller 140 and transceiver 130 are transmitted from the base station 160 of the Proctor, Jr. system. Hence, the information transmitted from the base station 160 (i.e., the pilot signal or "known data") are not received from a transceiver of information component of a part of an apparatus whose operation is being optimized, as claimed.

Furthermore, the controller 140 and transceiver 130 do not operate to transmit instructions for optimizing reception/transmission beam patterns back to itself. Rather, computed weight values are sent to the weight control components 111-115. However, the weight control components 111-115 of Proctor, Jr. are not described as including a memory,

a processor and a transceiver, as claimed, and thus they cannot be considered "information components," as claimed.

Additionally, Proctor, Jr. does not mention or suggest that data is received from the weight control components 111-115, and that instructions for optimizing at least one operation are determined based on such information. Thus, none of the components shown in connection with the mobile subscriber unit 60 shown in Figure 2 of Proctor, Jr. meets the claimed features related to an "information component," when considering the claim as a whole.

The methods and apparatus of present invention facilitate use of "smart" parts in an apparatus, for example, use of parts having relaxed and/or changing tolerances, wherein such characteristics are stored in memory of information components of the parts. By accessing and receiving the information stored in the part, instructions can be determined and transmitted to the part to optimize one or more operations of the part without sacrificing performance of the apparatus. The Proctor, Jr. apparatus does not describe any such mechanisms for receiving information from an information component of a part, determining instructions based on the received information, and transmitting the instructions to an information component of the part. Rather, the apparatus of Proctor, Jr. appears to adjust antenna weights based on internally stored data and algorithm, and a signal or data generated at an external source.

For at least these reasons, it is respectfully submitted that Proctor, Jr. does not describe the combinations of features set forth in amended independent claims 1, 8 and 15.

Claims 2-7, 9-14, 16-21 and 25-27 depend from one of claims 1, 8 and 15, and are therefore allowable at least for the above reasons, and further for the additional features recited. Also, it is respectfully submitted that the cellular communication system described in Proctor, Jr. patent does not disclose or suggest the subject matter related to a copier or printer, as recited in new claims 28-30.

In view of all of the foregoing, Applicant submits that this application is in condition for allowance and such allowance is earnestly solicited.

Respectfully submitted,

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